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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/533,935	05/04/2005	Rubina Mian	117-541	9653
23117	7590	08/08/2006		EXAMINER
NIXON & VANDERHYE, PC 901 NORTH GLEBE ROAD, 11TH FLOOR ARLINGTON, VA 22203				WOOD, AMANDA P
			ART UNIT	PAPER NUMBER
				1655

DATE MAILED: 08/08/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	10/533,935	MIAN ET AL.	
	<b>Examiner</b>	<b>Art Unit</b>	
	Amanda P. Wood	1655	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

1) Responsive to communication(s) filed on 19 April 2006.  
 2a) This action is FINAL.                    2b) This action is non-final.  
 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

4) Claim(s) 1-14 and 16-21 is/are pending in the application.  
 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.  
 5) Claim(s) \_\_\_\_\_ is/are allowed.  
 6) Claim(s) 1-14 and 16-21 is/are rejected.  
 7) Claim(s) \_\_\_\_\_ is/are objected to.  
 8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

9) The specification is objected to by the Examiner.  
 10) The drawing(s) filed on \_\_\_\_\_ is/are: a) accepted or b) objected to by the Examiner.  
     Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
     Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).  
 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
 a) All    b) Some \* c) None of:  
 1. Certified copies of the priority documents have been received.  
 2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)	4) <input type="checkbox"/> Interview Summary (PTO-413)
2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)	Paper No(s)/Mail Date. _____
3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date <u>5/05, 7/05</u> .	5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)
	6) <input type="checkbox"/> Other: _____

**DETAILED ACTION-Non-Final Rejection**

***Election/Restrictions***

Applicant's election without traverse of Group I (claims 1-14 and 16-21) in the reply filed on 19 April 2006 is acknowledged.

Claims 1-14 and 16-21 are presented for consideration on the merits.

***Claim Rejections - 35 USC § 112***

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1-14 and 16-21 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. In particular, part (b) of claim 1 is unclear, particularly near the phrase "when neutrophils" in line 2 where it seems that there may be words missing, (i.e., perhaps it should read "when compared to neutrophils"). Furthermore, line 2, part (c) of claim 1 is unclear as to which sample, the test sample or the control sample, the comparing step is being performed. For purposes of examination, the Examiner will assume that Applicant means the test sample is compared to the control sample, but an amendment to that effect would clarify the matter. Furthermore, it is unclear in claim 1, part (c) how lower superoxide production in the test sample is indicative of an effect of a psychological stressor on the individual's

physiological status (i.e., to what physiological status is the Applicant referring, and has the stressor negatively or positively affected that status?).

Claim 1 recites the limitation "the increase" in part (b) line 1. There is insufficient antecedent basis for this limitation in the claim.

Claim 1 recites the limitation "the effect" in part (c) lines 4-5. There is insufficient antecedent basis for this limitation in the claim.

Claim 2 recites the limitation "the coping capacity" in line 1. There is insufficient antecedent basis for this limitation in the claim.

All other claims depend directly or indirectly from claim 1 and are therefore also rejected for the reasons set forth above.

### ***Claim Rejections - 35 USC § 102***

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-5, 9, and 18-20 are rejected under 35 U.S.C. 102(b) as being anticipated by Kang et al (Brain, Behavior, and Immunity 1996).

A method of contacting a test sample comprising neutrophils with an inducer capable of stimulating superoxide production, wherein the sample is obtained from a mammal or bird is claimed.

Kang et al teach a method wherein the influence of academic examinations (i.e., psychological stressor) on immunity was investigated in students (i.e., humans) to determine if stress-related changes would occur. Kang et al teach a method wherein blood samples from students were collected by venipuncture (i.e., a known stressful

regime which is a protocol for medical treatment) one month prior to final exams (i.e., basal level), during exams, and 2-3 weeks after exams (i.e., coping capacity). Kang et al assessed neutrophil production of superoxide by activation with either PMA or FMLP. Kang et al teach that students showed marked shifts in leukocyte numbers and immune responses during the course of exams, and that such stressful types of events may be of significance if individuals become exposed to a virulent respiratory pathogen at the time (see, for example, Abstract, pg. 167, pg. 179).

Therefore, the reference is deemed to anticipate the instant claims above.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1 and 6-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kang et al (Brain, Behavior, and Immunity 1996) in view of Morrow-Tesch et al (J. Anim. Sci. 1994).

Kang et al is relied upon for the reasons set forth above.

Kang et al does not expressly teach a method wherein the individual is a bird, a farmed animal, or a wild mammal.

Morrow-Tesch et al beneficially teach that animals may experience acute or chronic social (i.e., psychological) stress. In particular, Morrow-Tesch et al teach that

social stress can decrease cellular immunity and resistance to bacterial infections.

Morrow-Tesch et al beneficially teach a method wherein domestic pigs were used to evaluate heat and social stress on immune indices. In particular, Morrow-Tesch et al teach that neutrophils are released into the peripheral circulation during stress, and that venipuncture (i.e., a known stressful regime which is a protocol for medical treatment) on day zero might cause greater stress than in later days, when pigs are acclimated to the routine, therefore, one would expect the numbers of neutrophils in pigs in the control air temperature to decline over time, which did occur, as seen in Figure 6 (see, for example, Abstract, pg. 2599, pg. 2607, 2608). Furthermore, Morrow-Tesch et al beneficially teach that the way stress affects animals' immune systems needs to be further studied.

It would have been obvious to one of ordinary skill in the art at the time the claimed invention was made to modify the methods disclosed by Kang et al based upon the beneficial teachings provided by Morrow-Tesch et al with respect to the art-recognized method of evaluating animals, such as pigs for stress-related problems, as discussed above. Furthermore, the Kang et al particularly point out that psychological stressors such as exams induce changes above basal levels in the superoxide release by neutrophils by students, and also test students' coping capacity after the exams, and therefore, it would have been obvious and beneficial for the skilled artisan to use the methods taught by Kang et al in conjunction with the methods of Morrow-Tesch et al so as to determine whether an individual is experiencing a changed physiological status arising from exposure to a psychological stressor. The result-effective adjustment of

particular conventional working conditions (e.g., using a particular type of individual) is deemed merely a matter of judicious selection and routine optimization which is well within the purview of the skilled artisan.

From the teachings of the references, it is apparent that one of ordinary skill in the art would have had a reasonable expectation of success in producing the claimed invention. Therefore, the invention as a whole, was *prima facie* obvious to one of ordinary skill in the art at the time the claimed invention was made, as evidenced by the cited references, especially in the absence of evidence to the contrary.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-5 and 9-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kang et al (Brain, Behavior, and Immunity 1996) in view of Pfefferkorn (US 5,492,816).

Kang et al is relied upon for the reasons set forth above.

Kang et al does not expressly teach a method wherein superoxide production is detected using luminol as an amplifier and the resulting chemiluminescence is measured.

Pfefferkorn beneficially teaches a method wherein luminol is used to measure the chemiluminescence in superoxide anion assays triggered by PMA or FMLP in cells such as polymorphonuclear nucleocytes (i.e., neutrophils) (see, Abstract, and col. 4, lines 15-35, and col. 3, lines 50-65).

It would have been obvious to one of ordinary skill in the art at the time the claimed invention was made to modify the methods disclosed by Kang et al based upon the beneficial teachings provided by Pfefferkorn with respect to the art-recognized method of enhancing detection of superoxide anion using luminol, as discussed above. Furthermore, the Kang et al particularly point out that psychological stressors such as exams induce changes above basal levels in the superoxide release by neutrophils by students, and also test students' coping capacity after the exams, and therefore, it would have been obvious and beneficial for the skilled artisan to use the methods taught by Kang et al in conjunction with the methods of Pfefferkorn so as to determine whether an individual is experiencing a changed physiological status arising from exposure to a psychological stressor. The result-effective adjustment of particular conventional working conditions (e.g., using a particular inducer or particular type of sample) is deemed merely a matter of judicious selection and routine optimization which is well within the purview of the skilled artisan.

From the teachings of the references, it is apparent that one of ordinary skill in the art would have had a reasonable expectation of success in producing the claimed invention. Therefore, the invention as a whole, was *prima facie* obvious to one of

ordinary skill in the art at the time the claimed invention was made, as evidenced by the cited references, especially in the absence of evidence to the contrary.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-5, 12-14, and 16-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kang et al (Brain, Behavior, and Immunity 1996) in view of Morrow-Tesch, and further view of Ellard et al (Int. J. of Psychophysiology May 2001).

Kang et al and Morrow-Tesch et al are relied upon for the reasons set forth above.

Kang et al and Morrow-Tesch et al do not expressly teach a method wherein a test compound is administered to an individual.

Ellard et al beneficially teach that even short-term psychological stressors can activate neutrophils. Furthermore, Ellard et al beneficially teach that neutrophils play a pivotal role in protecting the body against disease, and that once activated, neutrophils are unable to respond to opportunistic infections, e.g., invading bacteria, would therefore render the body more susceptible to disease and tissue damage. Ellard et al teach a method wherein volunteers took part in a study examining the effects of a short-

term mental stressor on the activation of neutrophils. Ellard et al teach that a control group did not complete the mental stressor task, and only completed the four finger-stick blood samples (i.e., a known stressful regime which is a protocol for medical treatment). Ellard et al teach that a marked increase in the activation of neutrophils occurs in response to psychological stressors, and that there was little or no change in the control volunteers' neutrophil activation.

It would have been obvious to one of ordinary skill in the art at the time the claimed invention was made to modify the methods disclosed by Kang et al based upon the beneficial teachings provided by Morrow-Tesch et al with respect to the art-recognized method of evaluating animals, such as pigs for stress-related problems, and with respect to Ellard et al with respect to the beneficial teaching that activation of neutrophils renders an individual more susceptible to disease, as discussed above. Furthermore, the Kang et al particularly point out that psychological stressors such as exams induce changes above basal levels in the superoxide release by neutrophils by students, and also test students' coping capacity after the exams, and therefore, it would have been obvious and beneficial for the skilled artisan to use the methods taught by Kang et al in conjunction with the methods of Morrow-Tesch et al so as to determine whether an individual is experiencing a changed physiological status arising from exposure to a psychological stressor. Based upon Ellard et al's teachings and conclusions that neutrophils are activated, it is more difficult for neutrophils to respond to invading bacteria, it would have been obvious to one of ordinary skill in the art at the time the claimed invention was made to use the methods of Kang et al and Morrow-

Tesch et al to screen for stress-relieving drugs by administering test compounds to individuals so as to determine whether their coping capacity has been affected when they are exposed to a psychological stressor. The result-effective adjustment of particular conventional working conditions (e.g., using a particular inducer or particular type of sample from a particular type of individual) is deemed merely a matter of judicious selection and routine optimization which is well within the purview of the skilled artisan.

From the teachings of the references, it is apparent that one of ordinary skill in the art would have had a reasonable expectation of success in producing the claimed invention. Therefore, the invention as a whole, was *prima facie* obvious to one of ordinary skill in the art at the time the claimed invention was made, as evidenced by the cited references, especially in the absence of evidence to the contrary.

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Amanda P. Wood whose telephone number is (571) 272-8141. The examiner can normally be reached on M-F 8:30AM -5PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Terry McKelvey can be reached on (571) 272-0775. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

APW  
Examiner  
Art Unit 1655

APW



CHRISTOPHER R. TATE  
PRIMARY EXAMINER